frontal convolutions, and possibly, crossing the fissure of Rolando, the anterior part of the ascending parietal convolution. Testing the effect of verbal expression in intellectual work on the comparative rise of temperature in the surface over Broca's convolution, it was found that the average was greater than that ordinarily obtained in comparison with the space in the middle region in which the experimental conditions were as nearly as possible the same; still, this average was hardly enough to justify a conclusion that the temperature of the surface over Broca's convolution is specially affected by reading aloud. In the greater number of cases experimented upon, in all three regions, the greater rise of temperature, both in intellectual work and in emotional activity, takes place on the left side of the head. His final inference is that—

> "taking the rise of temperature as the best available measure of functional activity—the relative elevations of temperature of areas of a certain size of the outer surface, during mental exercise, represent with considerable correctness the relative degrees of functional activity of the corresponding underlying portions of brain surface."

It will be seen, from this *resumé* of the most important conclusions arrived at by Dr. Lombard, that his book will prove of special interest to the students of localization, and to those engaged in local thermometrical investigations. He deserves all praise for the careful, minute, and elaborate character of his work, of which we have only given a sketchy outline. In all he has made no less than sixty thousand observations. C. K. M.

ART. XLI.—*Health Reports.*

1. *First Annual Report of the State Board of Health of the State of Rhode Island for* 1878. Pp. 200. Providence, 1879.
2. *First Annual Report of the State Board of Health of Kentucky*, 1878. Pp. cxxiv., 84. Frankfort, 1879.
3. *Third Report of the Board of Health of the City of Nashville for* 1877 and 1878. Pp. 384. Nashville, 1879.
4. *Annual Report of the Board of Health of the State of Louisiana for the year* 1878. Pp. 192. New Orleans, 1879.
5. *Seventh Annual Report of the State Board of Health of Minnesota, January*, 1879. Pp. 133. Minneapolis.
6. *Fifth Biennial Report of the State Board of Health of California for the years ending* 1878 *and* 1879. Pp. 115. Sacramento, 1879.

1. THE establishment of a *State Board of Health in Rhode Island* appears to have been another of the beneficial results arising from the International Medical Congress held in Philadelphia in 1876, and in accordance with a resolution then and there adopted and transmitted to the governors of all the States and of the Canadian provinces. A history of the inception and establishment of this important portion of the machinery for securing that great object of all right government—the greatest good to the greatest number of those governed—is prefixed to the report, and should be carefully studied by physicians and legislators engaged in elaborating similar plans for sanitary improvement. The chairman of the legislative committee, to whom the project was referred, submitted a paper in which he calculated that, out of 4116 individuals

who died in the State of Rhode Island during 1876, at least 3500 were in the effective or expectantly effective period of life, and had an average public value of $500 each. He then estimated that the lives of five per cent. of these, or 175 individuals, representing a money value to the community of $87,500, might be saved annually by sanitary care, and, adding to this $236,000, which might be saved by prevention of non-fatal illness, pointed out that the very large total of $323,500 might be annually economized to the State "by such measures as could be put into effective operation through the agency of a judicious board of health." The cogent argument contained in this exhibit of wasted lives *and* wasted dollars, with other considerations advanced with equal ability, resulted in the passage of an act authorizing the Governor to appoint six persons (three of whom must be physicians), serving without compensation, except the secretary, who was allowed $1200 per annum.

The objects of the board were judiciously furthered by the publication of public health tracts, the first giving practical sanitary hints in regard to avoidance of accumulations of filth, the use of disinfectants, ventilation of sewer pipes, contaminated well water, uncleanly cellars, etc.; and the second, urging methods for the restriction and prevention of scarlet fever, diphtheria, smallpox, and other infectious diseases.

An important part of the work of the State Board, and one in which it continued the good service of a cattle commission which preceded it, has been the effort to control and stamp out, if possible, that dangerous contagious disease, glanders or farcy. Stringent regulations were adopted against allowing glandered animals to be led along a public street, or to be kept with other horses, and the provisions by which these ordinances were enforced are well worthy of attention. The whole subject is one which has been too much neglected throughout the country.

2. The *State Board of Health of Kentucky* owes its existence to an act which is an almost verbatim transcript of the board of health law of Michigan. The board has a general supervision of the interests of the health and life of the citizens, and also advisory functions in regard to the location, drainage, water supply, disposal of excreta, heating, and ventilation of public institutions or buildings, and is directed to recommend from time to time works on hygiene for the use of schools of the State.

Beside the County Reports on mortality and short papers on poisonous baking powders and contamination of water supply—the latter a valuable contribution by W. B. Rodman, M.D., of Frankfort; the bulk of the volume is made up of articles in regard to the yellow fever epidemic of 1878. Among them the most complete seems to be that from the pen of Pinckney Thompson, M.D., of Henderson, Chairman of the State Board of Health, and from it we learn that the fever prevailed chiefly at Hickman, but also appeared at Bowling Green, Fulton, and Louisville.

The poison of yellow fever seems to have been introduced about the first week of August, either from that floating pestilence reservoir, the steamer John D. Porter, or from the steamer Golden Rule. Three men from the Porter came to the wharf, and one of them went up to the telegraph office in the town. The vessel itself did not approach the landing, and only lay in the Mississippi River opposite Hickman for about half an hour, but the important statement is made that "a strong southwest wind was blowing at the time, passing over the boat to the town." Dr. Thompson describes the existence of the three great factors for the development of yellow fever, viz., abundance of effluvia from vegetable and animal decomposition, moisture, and a mean temperature above 81° F. as existing especially in the low-lying portion of the town called Old Hickman, and believes the fourth factor, the specific yellow fever poison or germ, was supplied from the steamer John D. Porter, as above related.

Two hundred and sixty-two whites suffered from yellow fever in Hickman during this epidemic, and of these 132 died. Of 200 negroes who were also attacked, only 17 died.

3. *The Report of the Board of Health of the City of Nashville* is an attractive volume, well printed on fine tinted paper, and handsomely bound in such a way as to present a most agreeable contrast to the impecunious and severely utilitarian aspect common to board of health reports. The source of this astonishing prosperity is revealed in the letter of Dr. J. D. Plunkett, President of the Board, in which he states that "the same public spirited citizen who enabled us to bring out the last report in handsome guise, has again added to our resources, so as to enable us to get out a volume which is truly a practical public health manual."

The list of contents is headed by a long, able, and interesting Report on Sanitary Progress in Nashville with mortuary statistics for 1877 and 1878, by J. Berrien Lindsley, M.D., Health Officer. This article, without offering any important novelties in hygienic experience or investigation, presents in a very readable form some of the best conclusions obtained by sanitarians elsewhere, and is replete with intelligent suggestions for their practical application to the local conditions met with in the city of Nashville. Dr. Lindsley also contributes a valuable essay on the Mental and Physical Hygiene of the American System of Public Schools, which, although written with special reference to the city of Nashville, is well worthy of study by every one engaged in the education of our youth.

Alexander Winchell, LL.D., Prof. of Historical Geology and Zoology in Vanderbilt University, contributes a good paper on the Sanitary Geology of Nashville, concluding from his investigations that the geological situation of the city is favourable for the introduction of a cheap and efficient system of drainage and sewerage.

> "The copious springs which break forth in so many localities may be admirably utilized in giving efficiency to the sewage system, but these waters are strongly mineralized, and are generally exposed to inevitable pollution by human agency. The river, on the contrary, supplies a soft and wholesome article of water, whose use ought to displace that of the springs, even if compulsory legislation must be resorted to. The wells of the city ought also for similar reasons to pass into disuse."

In his article on trees and shrubbery adapted to the soil and climate of Nashville, Dr. August Gattinger presents a well-arranged popular description of the arboraceous and herbaceous treasures of Tennessee, and an earnest plea in favour of shade trees and plants in urban districts. The author of this essay, as an evolutionist philosopher, must certainly have studied the doctrine of the correlation of forces, and we are therefore surprised to find him indulging on p. 157 in the loose expression, "surfaces covered with vegetation annihilate heat, so to speak, in proportion to the mass of the vegetation."

The remainder of the volume is chiefly occupied with an account of Nashville during the yellow fever epidemic, also by Dr. Lindsley, the Health Officer, which is especially instructive as a detail of the satisfactory results from this city's noble invitation to the terror stricken refugees, flying in panic from the fever districts of the Southwest.

4. *The Report of the Board of Health of Louisiana*, comprising as it does the time and place of outbreak of the terrible epidemic of yellow fever which devastated so many of the States bordering upon the Mississippi River, is of eminent importance. As however our readers are doubtless familiar with the mournful details of this history, we need only touch upon a few of the salient or still debatable points here set forth.

The President of the Health Board, Dr. Samuel Choppin, in his introduction, claims that further investigation has only confirmed the opinion that the germs of yellow fever were introduced into New Orleans by the steamship Emily A. Souder, which arrived on the 22d of May.

In reference to quarantine Dr. Choppin declares that—

> "With regard to the efficacy of a strict quarantine, the epidemic of the present year goes to sustain the theory of importation and portability of yellow fever. Witness Galveston, which has not developed a single case; witness Shreveport, Monroe, Louisiana, Natchez, Miss., with their shot-gun quarantines turning away the pestilence. There must be no mediocrity in the organization of a quarantine. If it does not interpose an insurmountable barrier between the healthy and infected localities, it is worse than useless."

In connection with the subject of out-door disinfection, which was tried on a large scale with 3 per cent. solution of carbolic acid (Calvert's No. 5) he admits its want of success, endeavours to explain this failure, and contends that for closed spaces or apartments sulphur fumigation is applicable, and there is good reason to believe that its thorough use is effectual in destroying the yellow fever infection.

The bulk of the book is made up of minute reports from the sanitary inspectors of the seven districts into which the city of New Orleans is divided. These records give in detail the facts upon which the generalization already referred to are founded. It is not therefore necessary for us to review them separately, and we will content ourselves with the following indignant protest from Dr. Joseph Holt of the Fourth district in regard to the pauper burying-ground, the condition of which must go far to account for the dread in which strangers hold the poisonous atmosphere of New Orleans during the summer months.

> "This is now the potter's field, a low marsh wherein the sexton performs his heavy task faithfully and as best he can, sometimes floating to their graves the dead, and weighting them into their homes, the whole graveyard being often a foot under water. The nature of his field renders it impossible for him to dig these graves deeper than has been his habit. But this is Potter's field; an injurious infliction and an outrage upon the living, a disgrace to our humanity, to our morals, and to our city; an indecency perpetrated upon the dead, *because they died poor!*"

5. *The Annual Report of the State Board of Health of Minnesota* is a comparatively brief record of the sanitary work, but is sufficient to show that much public benefit can be secured by even a small pecuniary expenditure. According to the general report of Dr. Chas. N. Hewitt, Secretary, smallpox had during the year twice obtained a foothold in the State, namely, at Mankato, and at Fisher's Landing, and assistance being called for, aid was furnished just over the boundary to the neighbourhood of Grand Forks, D. T. The outbreak in Mankato was traced to a couple of unvaccinated children from Port Washington, Wisconsin, who had been

held on the lap of a man, (?) returning from visiting a friend ill with smallpox. The attending physician did not recognize the disease as variola for about two weeks, and then attempted to keep it a secret, of course without success. From the house in which these two children were ill the contagion was traced to 25 different cases in ten different houses, but the further spread of the malady was prevented by careful vaccination and re-vaccination. The epidemic at Fisher's Landing originated from a woman who brought the disease from Manitoba, Canada, and it was promptly checked by vaccination.

Dr. E. J. Davis briefly reports upon vaccination with animal virus in Blue Earth Co., but as he fails to tabulate the results, his paper is not so valuable as it might have been made. It appears, however, that thirteen out of fifteen physicians employing animal vaccine prefer it to humanized virus, and that no fatal results occurred in 3104 cases.

An elaborate essay on Diphtheria, prepared by Dr. Franklin Staples of Winona, occupies about fifty pages of the report, and is worthy of careful study, since the material for observation appears to have been unfortunately amply abundant. The method adopted was the usual one of issuing circular letters of inquiry. Dr. Staples' general conclusions are:—

> "1st. Diphtheria often originates spontaneously where contagion is impossible. Sporadic cases, some of which have occurred in almost every locality in the State, have generally originated in this manner, as well as have the first cases in many local epidemics. 2d. The fact most clearly proved by our investigation, and which has been illustrated by a large number and variety of cases, is that of the infectious and contagious character of this disease."

The most marked epidemic of diphtheria during 1878 was at Mankato, where it was studied by Dr. Staples. It began in July and continued until the end of the year, attacking about 350 persons, of whom nearly 14 per cent. died.

Short articles on the "water survey of the State," "on dust fires and explosions," as occurring in flour mills, etc., "on yellow fever" and "on the meteorology of Minnesota," occupy the remainder of the volume, which concludes with a paper by the Secretary, Dr. Chas. N. Hewitt, on school hygiene. In this Dr. H. gives a good formula for the systematic examination of school children, which might be generally introduced into our educational establishments with advantage.

6. From the report of the permanent secretary of the *State Board of Health of California* we learn that gratifying evidence of an improved sanitary condition of the State, "especially observable in the mortality by zymotic diseases and among the infantile population," is afforded.

A large part of the remainder of the volume is devoted to the questions of water supply, sewerage, baths, and bathing. In speaking of the latter subjects, Dr. Stout warmly advocates the magnificent project of supplying San Francisco and other intermediate towns with the crystal water of Lake Tahoe, which is said to be unsurpassed in excellence and unfailingly abundant. With this suggestion realized, Dr. Stout thinks that the munificent bequest of $150,000 from Mr. James Lick could be advantageously applied to its benevolent object of furnishing free baths to the lower classes of the population.

J. G. R.